YEGOROV, I.N., dotsent; SIROSH, P.M.; NAUMOV, A.V.· RASKIN, M.M.; NIKIFOROV,
   N.I., kand.veterin.nauk; TRAKHANOV, D.F., kand.veterin.nauk; PETUKHOVSKIY,
   A.A.; ENDZIN, A.K.

Sanitation and veterinary hygiene. Veterinariia 41 no.3:73-82 Mr '64.
                                              (MIRA 18:1)
1. Krasnoyarskiy sel'skokhozyaystvennyy institut (for Yegorov). 2.
Glavnyy veterinarnyy vrach Chernovitskogo oblastnogo upravleniya pro-
izvodstva i zagotovok sel'skokhozyaystvennykh produktov (for Sirosh).
3. Zaveduyushchiy khimicheskim otdelom Chernovitskoy oblastnoy veterinar-
noy laboratoriyey (for Raskin). 4. Direktor Chernovitskoy oblastnoy
veterinatnoy laboratoriyey (for Naumov). 5. Vsesoyuznyy nauchno-issledo-
vatel'skiy institut veterinarnoy sanitarii (for Nikiforov, Trakhanov).
6. Dezinfektsionnaya stantsiya Moskovskogo gorodskogo otdela zdravoo-
khraneniya (for Petukhovskiy). 7. Vsesoyuznyy nauchno-issledovatel'skiy
institut veterinarnoy sanitarii (for Endzin).

LERNER, I.P., dotsent, CIRCUH, P.P.

Some clinical aspects of septic endocarditis lenta. Vrach.delo no.6
583-589 Je '58
(MIRA 11:7)

1. Kafedra terapii (zav. - prof. D.F. Chebotarev) Kiyevskogo
instituta usovershenstvovaniya vrachey i Oblastnaya klinicheskaya
bol'nitsa.
(ENDOCARDITIS)

MAYBORODA, I.K.; Prinimali uchastiye: KOPIL, A.D. [Kopyl, A.D.], inzh.;
    SIROSHTAN, A.P., diplomant

Dependence of the intensity of analytical lines of fluxed sinter
on the state of the components of the solid specimen. Ukr.fiz.zhur.
6 no.6:853-859 N-D '61.   (MIRA 16:5)

1. Ukrgiprokol'ormet, m.Zaporizhzhya (for Mayboroda).
2. Zaporozhskiy staleplavil'nyy zavod (for Kopil).
3. Dnepropetrovskiy gosudarstvennyy universitet (for Siroshtan).
        (Spectrum analysis)   (Iron-calcium alloys)

IGNAT'YEV, Georgiy Petrovich[Ihnat'iev, H.P.]; SIROSHTAN, M.A., kand. ekon. nauk, red.; PARKHOMENKO, O.I., red.; LIMANOVA, M.I.[Lymanova, M.I.], tekhn. red.

[We are improving the management of our collective farm]Vdoskonaliuiemo kerivnytstvo kolhospom [Kharkiv]Kharkivs'ke knyzhkove vyd-vo, 1962. 38 p.   (MIRA 15:12)

1. Predsedatel' kolkhoza imeni Kirova Kharkovskogo rayona (for Ignat'yev).
                    (Farm management)

SIROSHTAN, R. I.

622.6
.S4

Pole Migmatitov I Granitor R. Ingul'tsa (Migmatites and Granites of the Ingulets River, By) N. P. Semenenko, R. I. Siroshtan, I V. D. Stepanets. Kiyev, Izd-vo. An USSR, 1954.

161 P. Diagrs. (Akademiya Nauk Ukrainskoy SSR. Institut Geologicheskikh Nauk. Trudy. Seriya Petrografii, Mineralogii I Geokhimi, Vyp. 3)

SEMENENKO, N.P.; SIROSHTAN, R.I.; STEPANETS, V.D.; RODIONOV, S.P., ot-
vetstvennyy redaktor; ZHEMBROVSKIY, M.A., redaktor; SIVACHENKO,
Ye. K.,tekhredaktor.

Field of migmatites and granites in the Ingulets Valley. Trudy Inst.
geol. nauk AN URSR no.3:5-162 '54.   (MIRA 8:3)

1. Chlen-korrespondent Akademii nauk USSR (for Rodionov)—
        (Ingulets Valley—Gneiss)   (Ingulets Valley—Granite)

SIROSHTAN, R.I.

USSR/ Geology

Card 1/1   Pub. 22 - 29/49

Authors   :   Belevtsev, Ya. N.; Siroshtan, R. I.; and Skuridin, S. A.

Title   :   The granites in the upper sections of the Krivoyrog formations

Periodical :   Dok. AN SSSR 100/5, 951-954, Feb 11, 1955

Abstract   :   The discovery in 1953 of granite pebbles among the conglomerates of
the Krivoyrog formations is reported. Geological data of these
granite inclusions are included. Tables.

Institution :   . . . .

Presented by: Academician A. G. Betekgtin, November 14, 1954

AKIMENKO, N.M.; BELEVTSEV, Ya.N.; GOROSHNIKOV, B.I.; DUBINKINA, R.P.;
ISHCHENKO, D.I.; KARSHENBAUM, A.P.; KULISHOV, M.P.; LYASHCHENKO,
K.P.; MAKSIMOVICH, V.L.; SKURIDIN, S.A.; SIROSHTAN, D.I., TOKHTUYEV,
G.V.; FOMENKO, V.Yu.; SHCHERBAKOVA, K.F.; SEMENOV, M.V., red.izd-va;
AVERKIYEVA, T.A., tekhn.red.

[Geological structure and iron ores of the Krivoy Rog Basin]
Geologicheskoe stroenie i zheleznye rudy Krivorozhskogo basseina.
Moskva, Gos. nauchno-tekhn.izd-vo lit-ry po geologii i okhrane
nedr, 1957. 278 p.   (MIRA 11:3)
        (Krivoi Rog Basin--Geology)

S, Rest ian, R I

BELEVTSEV, Ya.M.; AKIMENKO, M.M.; ZHIIKINS'KIY, S.I.; SHCHERBAKOV, B.D.;
TOKHTUYEV, G.V.; SIROSHTAN, R.I.; FOMENKO, V.Yu.

Method for studying structures of the Krivoy Rog Basin. Geol. zhur.
17 no.2:80-82 '57.   (MLRA 10:11)
                    (Krivoy Rog Basin--Geology, Structural)

AYZENVERG, D.Ye. , geolog; BALUKHOVSKIY, N.F., geolog; BARTOSHEVSKIY, V.I.,
geolog; BASS, Yu.B., geolog; VADIMOV, N.T., geolog; GLADKIY, V.Ya.,
geolog; DIDKOVSKIY, V.Ya., geolog; YERSHOV, V.A., geolog; ZHUKOV,
G.V., geolog; ZAMORIY, P.K., geolog; IVANTISHIN, M.N., geolog;
KAPTARENKO-CHERNOUSOVA, O.K., geolog; KLIMENKO, V.Ya., geolog;
KLUSHIN, V.I., geolog; KLYUSHNIKOV, M.N., geolog; KRASHENINNIKOVA,
O.V., geolog; KUTSYBA, A.M., geolog; LAPCHIK, F.Ye., geolog;
LICHAK, I.L., geolog; MAKUKHINA, A.A., geolog; MATVIYENKO, Ye.M.,
geolog; MEDYNA, V.S., geolog; MOLYAVKO, G.I., geolog; NAYDIN,
D.P., geolog; NOVIK, Ye.O., geolog; POLOVKO, I.K., geolog; RODIONOV,
S.P., geolog; SEMENENKO, N.P., akademik, geolog; SERGEYEV, A.D.,
geolog; SIROSHTAN, R.I., geolog; SLAVIN, V.I., geolog; SUKHAREVICH,
P.P., geolog; TKACHUK, L.G., geolog; USENKO, I.S., geolog; USTI-
NOVSKIY, Yu.B.; geolog; TSAROVSKIY, I.D., geolog; SHUL'GA, P.L.,
geolog; YURK, Yu.Yu., geolog; YAMNICHENKO, I.M., geolog; ANTROPOV,
P.Ya., glavnyy redaktor; FILIPPOVA, B.S., red. izd-va; GUROVA,
O.A., tekhn.red.

[Geology of the U.S.S.R.] Geologiia SSSR. Glav. red. P.IA.Antropov.
Vol.5.[Ukrainian S.S.R., Moldavian S.S.R.]   . . Ukrainskaia SSR,
Moldavskaia SSR. Red. V.A. Ershov, N.P. Semenenko. Pt.1.[Geological
description of the platform area] Geologicheskoe opisanie platfor-
mennoi chasti. Moskva. Gos. nauchno-tekhn.izd-vo lit-ry po geol. i
okhrane nedr. 1958. 1000 p. [___ Supplement] ___Prilozheniia.
(Continued on next card)

AYZENVERG, D.Ye.---(continued) Card 2.
    3 fold.maps (in portfolio)   (MIRA 12:1)

    1. Russia (1923-   U.S.S.R.) Glavnoye upravleniye geologii i
    okhrany nedr. 2. Ukrainskoye geologicheskoye upravleniye
    Ministerstva geologii i okhrany nedr SSSR i Institut geologicheskikh
    nauk Akademii nauk USSR (for all except Antropov, Filippova, Gurova).
    3.Glavnyy geolog Ukrainskogo geologicheskogo upravleniya (for Yershov).
    4. AN Ukrainskoy SSR (for Semenenko).
        (Ukraine--Geology)   (Moldavia--Geology)

SIROSHTAN, R.I.; CHERNOVSKIY, M.I.[Chernovs'kyi, M.I.]

Correlation of rocks in the middle series of the Likhmanovskaya
syncline and the Tarapako-Likhmanovskaya anticline in the Krivoy
Rog. Geol. zhur. 18 no. 2:83-86 '58.   (MIRA 11:7)
        (Krivoy Rog Basin--Geology, Stratigraphic)

SIROSHTAN, R.I.; POLOVKO, N.I.

Hornblendes in metabasites in ferruginous-siliceous formations of the Ukrainian crystalline shield. Geol. zhur. 19 no.4:47-57 '59.

(MIRA 13:1)

(Ukraine--Hornblende)

SOV/5325

PHASE I BOOK EXPLOITATION

International Geological Congress. 21st, Copenhagen, 1960.

Granito-gneysy (Gneissose Granites) Kiyev, Izd-vo AN UkrSSR, 1960. 174 p. 1,000 copies printed. (Series: Doklady sovetskikh geologov, problema 14) Added t. p. in English.

Sponsoring Agency: Akademiya nauk Soyuza SSR. Akademiya nauk Ukrainskoy SSR. Ministerstvo geologii i okhrany nedr SSSR. Natsional'nyy komitet geologov Sovetskogo Soyuza.

Editorial Board: Resp. Eds.: N.P. Semenenko, D.S. Korzhinskiy, and G.D. Afanas'yev; Ed. of Publishing House: V.N. Zaviryukhina; Tech. Ed.: A.A. Matveychuk.

PURPOSE: This book is intended for geologists and petrographers, as well as students of geology at schools of higher education.

COVERAGE: The book contains 13 articles representing the reports given by Soviet scientists at the 21st Session of the International Geological Congress. The individual reports deal with theoretical problems of metamorphism and inter- of magmatic masses, formation of granites, magmatic replacement in sub formation of scarns, and paragenetic analysis. Representa

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Sponsoring Agency: Akademiya nauk Soyuza SSR. Akademiya nauk Ukrainskoy SSR.
    Ministerstvo geologii i okhrany nedr SSSR. Natsional'nyy komitet geologov
    Sovetskogo Soyuza.

Editorial Board: Resp.Eds.: N.P. Semenenko, D.S. Korzhinskiy, and G.D. Afanas'yev;
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    individual reports deal with theoretical problems of metamorphism and inter-
    action of magmatic masses, formation of granites, magmatic replacement in sub-
    effusive facies, formation of scarns, and paragenetic analysis. Representatives
Card 1/5

Gneissose Granites

SOV/5325

of the following scientific institutions participated in the work: D.S. Kor-
zhinskiy and V.A. Zharikov, of IGEM (Institute of Geology of Mineral Deposits,
Petrography, and Geochemistry AS USSR); V.V. Tikhomirov, of the Institut geol-
ogii AN SSSR (Institute of Geology AS USSR); N.G. Sudovikov, Laboratoriya
problem dokembriya (Laboratory of Precambrium Problems); N.P. Semenenko, R.I.
Siroshtan, N.I. Polovko, Ya. N. Belevtsev, and A.I. Strygin of the Institut
geologicheskikh nauk AN UkrSSR (Institute of Geological Sciences AS UkrSSR);
V.S. Sobolev of the Institut geologii poleznykh iskopayemykh AN UkrSSR
(Institute of Geology of Minerals AS UkrSSR) and L'vovskiy gosudarstvennyy
universitet (L'vov State University); G.M. Zaridze, and N.F. Tatrishvili of the
Geologicheskiy institut AN Gruzinskoy SSR (Geological Institute AS GruzSjR);
G.L. Pospelov, Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR
(Institute of Geology and Geophysics of the Siberian Department of the AS USSR);
N.A. Govorov of the Dal'nevostochnyy filial AN SSSR (Far Eastern Branch of the
AS USSR); and I.F. Trusova, of the Moskovskiy geologorazvedochnyy institut
(Moscow Institute for Geological Exploration). An English resume accompanies
each article. References follow individual articles.

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Gneissose Granites   SOV/

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SIROSHTAN, R.I.; ISHCHENKO, D.I.

Decoloration of carbon-quartz-sericite shales of the upper
series in the Krivoy Rog area. Dop.AN URSR no.1:87-90 '60.
(MIRA 13:6)

1. Institut geologicheskikh nauk AN USSR. Predstavleno aka-
demikom AN USSR N.P.Semenenko [M.P.Semenenko].
(Krivoy Rog Basin--Shale)

POLOVKO, N.I.; SIROSHTAN, R.I.; RYABOKON', S.M.

Characteristics of certain metaultrabasite minerals in ferro-
siliceous formations of the Ukraine. Geol. zhur. 20 no. 3:13-26
'60.   (MIRA 14:4)

(Ukraine—Minerals)

IVANTISHIN, Mikhail Nikolayevich [Ivantyshyn, M.M.]; SEMENENKO, M.P.,
    akademik, otv.red.; SIROSHTAN, R.I., kand.geol.-mineral nauk,
    red.vypuska; OVCHAROVA, Z.G. [Ovcharova, Z.H.], red.;
    KADASHEVICH, O.O., tekhn.red.

[Geochemical characteristics of rock-forming elements of Pre-
Cambrian intrusive rocks in the Ukrainian Crystalline Shield]
Geokhimichna kharakterystyka porodoutvoriuiuchykh elementiv
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shchyta. Kyiv, Vyd-vo Akad.nauk Ukrainskoi RSR, 1961. 34 p.
(Akademiia nauk URSR, Kiev. Institut geologichnykh nauk. Trudy,
no.13).   (MIRA 14:12)

1. AN USSR (for Semenenko).
    (Dnieper Valley--Rocks, Igenous) (Geochemical prospecting)

SHCHERBAK, Nikolay Petrovich [Shcherbak, M.P.]; SIROSHTAN, R.I., otv.red.;
    POKROVSKAYA, Z.S. [Pokrovs'ka, Z.S.], red.izd-va; MATVIYCHUK, O.O.,
    tekhn.red.

[Geology and accessory mineralization of the Pre-Cambrian in the
upper Teterev Valley] Geologiia i aktsesorna mineralizatsiia dokembriiu
verkhiv'iv r. Tetereva. Kyiv, Vyd-vo Akad. nauk URSR, 1961. 86 p.
(Akademiia Nauk URSR, Kiev. Instytut geologichnykh nauk. Pratsi.
Seriia geokhimii, Petrografii i mineralogii, no.10).   (MIRA 16:5)
                    (Teterev Valley--Geology)

SHNYUKOV, Ye.F.; NAUMENKO, P.I.; SIROSHTAN, R.I., kand. geol.-
miner. nauk, otv. red.; YARMYSH, Yu., red.izd-va; FISENKO,A.,
tekhn. red.

[Kerch Basin manganese and iron ores]Margantsovo-zheleznye rudy
Kerchenskogo basseina. Simferopol', Krymizdat, 1961. 178 p.
(MIRA 16:3)

(Kerch Basin—Manganese ores)
(Kerch Basin—Iron ores)

BELEVTSEV, Ya.N.; FOMENKO, V.Yu.; NOTAROV, V.D.; MOLYAVKO,G.I.;MEL'NIK,
Yu.P.; SIROSHTAN, R.I.; DOVGAN', M.N.; CHERNOVSKIY, M.I.;
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AKIMENKO, N.M.; SEMERGEYEVA, Ye.A.; KUCHER, V.N.; TAKHTUYEV,
G.V.; KALYAYEV, G.I.; ZARUBA, V.M.; NAZAROV, P.P.; MAKSIMOVICH,
V.L.; STRUYEVA, G.M.; KARSHENBAUM, A.P.; SKARZHINSKAYA, T.A.;
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P.D.; ZHILKINSKIY, S.I.; KAZAK, V.M.; KACHAN, V.G.; STRYGIN,
A.I., red.; LADIYEVA, V.D., red.; ZHUKOV, G.V., red.; YEPATKO,
Yu.M., red.; SHCHERBAKOV, B.D., red.; SLENZAK, O.I., red.izd-va;
RAKHLINA, N.P., tekhn. red.

[Geology of Krivoy Rog iron-ore deposits]Geologiia Krivorozhskikh
zhelezorudnykh mestorozhdenii. Kiev, Izd-vo Akad. nauk USSR.
Vol.1.[General problems in the geology of the Krivoy Rog Basin.
Geology and iron ores of the deposits of the "Ingulets,"
Rakhmanovo, and Il'ich Mines]Obshchie voprosy geologii Krivbassa.
Geologicheskoe stroenie i zheleznye rudy mestorozhdenii rudnikov
"Ingulets," Rakhmanovskogo i im. Il'icha. 1962. 479 p.
        (Krivoy Rog Basin—Mining geology)   (MIRA 16:3)
        (Krivoy Rog Basin—Iron ores)

SEMENENKO, Nikolay Panteleymonovich; SIROSHTAN, R.I., starshiy
    nauchnyy sotrudnik, otv. red.; ZAVIRYUKHINA, V.N., red.

[Metamorphism of mobile belts.] Metamorfizm podvizhnykh zon.
Kiev, 1963. 256 p. (Akademiia nauk URSR, Kiev. Instytut
geologichnykh nauk. Trudy. Seriia petrografii, mineralogii i
geokhimii, no. 18)   (MIRA 17:5)

SHNYUKOV, Yevgeniy Fedorovich; SIROSHTAN, R.I., kand. geol.-min. nauk, otv. red.; SERDYUK, O.P., red.

[Genesis of Cimmerian iron ores in the Azov-Black Sea ore province] Genezis kimmeriiskikh zheleznykh rud Azovo-Chernomorskoi rudnoi provintsii. Kiev, Naukova dumka, 1965. 194 p.   (MIRA 18:6)

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Device for milling key grooves on a turning lathe; Odessa Ship
Repair Yard. Inform.sbor.TSNIIMF no.26:86-88 '58.
(MIRA 13:4)

1. Odesskiy sudoremontnyy zavod No.1.
    (Odessa--Shipyards--Equipment and supplies)

SIROTA, A.

Training riflemen in winter. Voen.zman.32 no.12:22-23 D '56.
(Shooting, Military)   (Winter warfare)   (MLRA 10:2)

SIROTA, A.D., podpolkovnik med.sluzhby; SERGEYEVA, T.I. (Voronezh)

Diagnosis and treatment of amoebic abscess of the liver. Vrach.delo
no.10:1087-1089 O '59.   (MIRA 13:2)
                      (LIVER--ABSCESS)

SIROTA, A.D.; VOROTNIKOVA, A.M.

Course of alveolar echinococciasis of the liver. Vrach.delo
no.4:142-143 Ap'63.
(MIRA 16:7)
(LIVER—HYDATIDS)

SOBERAYSKIY, Konstantin Stanislavovich; SIROTA, Ivan Fedorovich;
        BATRAKOV, Yuriy Grigor'yevich; VZNUZDAYEV, Sergey
        Vasil'yevich; DVORYANKOV, Sergey Mikhaylovich; MASLOV,
        A.V., red.; VASIL'YEVA, V.I., red.izd-va; ROMANOVA, V.V.,
        tekhn. red.

[Geodesic works for the construction of irrigation and
drainage systems] Geodezicheskie raboty dlia stroitel'stva
orositel'nykh i osushitel'nykh sistem. [By] K.S.Soberaiskii
i dr. Moskva, Gosgeoltekhizdat, 1963. 203 p.
                                        (MIRA 16:12)

  (Surveying)   (Irrigation)   (Drainage)

SIROTA, N.N.; DANIL'KEVICH, M.I.; SIROTA, A.G.; SHIMANSKAYA, V.P.

Electrets made from high polymers. Dokl.AN BSSR 2 no.10:413-415 N '58. (MIRA 12:8)

(Electrets)

SAMSONOV, G.V.; DMITRENKO, L.V.; SIROTA, A.G.; GORYUNKOVA, A.D.; MOROZOVA, I.G.;
KLIKH, S.F.; SHESTERIKOVA, M.P.

Purification of albomycin by using chromatographic method on sulfo-
cationites. Antibiotiki 3 no.2:90-94 Mr-Ap '58.   (MIRA 12:11)

1. Leningradskiy khimiko-farmatsevticheskiy institut, i Institut
vysokomolekulyarnykh soyedineniy AN SSSR.
          (ANTIBIOTICS,
                albomycin, chromatographic purification with sulfo-
                cation exchange resistance (Rus))
          (ION EXCHANGE RESINS,
                sulfo-cation exchange resin SDV-3, chromatographic
                purification of albomycin (Rus))

SAMSONOV, G.V., DMITRIYENKO, L.V., SIROTA, A.G., SHESTERIKOVA, M.P., LAVRENT'YEVA, S.F.

Physicochemical properties of albomycin [with summary in English]
Biokhimiia 23 no.2:220-224 Mr-Ap '58   (MIRA 11:6)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR i Khimiko-farmatsevticheskiy institut, Leningrad.
            (ANTIBIOTICS.
                    albomycin, physicochem. properties (Rus))

SIROTA, A.G.

Setting of phenol-formaldehyde materials in the presence of
dicarboxylic acids. Dokl.AN BSSR 3 no.3:91-94 Mr '59.
(MIRA 12:8)

1. Predstavleno akademikom AN BSSR N.F. Yermolenko.
        (Phenol condensation products)

5(1)
AUTHORS: Sirota, A. G., Petrov, G. S. (Deceased)   SOV/64-59-5-3/28

TITLE: Phenol Condensation With Formaldehyde in the Presence of
               a Binary Catalyst

PERIODICAL: Khimicheskaya promyshlennost', 1959, Nr 5, pp 383-385   (USSR)

ABSTRACT: The mechanism of the catalytic effect of hydrochloric acid -
               oxalic acid mixtures during phenol - formaldehyde
               condensation (C) in the novolak production was investigated.
               The experiments were carried out at constant pH-values and with
               variation of the ratio hydrochloric acid (I): oxalic acid (II),
               and it was determined that there is a functional relation
               between the rate of polycondensation (RP) and the composition
               of the (I) + (II) mixture (Fig 1). The temperature coefficient
               (TC) of the (C) is also dependent on the ratio of (I) + (II).
               By the addition of (II) to (I) the activity of the latter is
               weakened and (C) is retarded by reducing the active form of
               formaldehyde into an inactive one. By a further increase of the
               quantity of (II)(and the resulting decrease of the quantity of
               (I)) the catalytic function of the chloride ions is ever more
Card 1/2   replaced by that of (II)-anions, thus causing another increase

Phenol Condensation With Formaldehyde in the   SOV/64-59-5-3/28
Presence of a Binary Catalyst

in the (RP). This explains the occurrence of a minimum on the
curves. (Fig 1). A shift of the minimum by a change in
temperature is explained by an increase of the dissociation
constant of (II) with the temperature. The latter is also
attributed to the dependence of the (TC) on the composition
of the catalyst. There are 2 figures and 2 references.

Card 2/2

SIRCTA, A. G., Cand Tech Sci -- (diss) "Synthesis and hardening of phenol-formaldehyde resins in the presence of dicarboxylic acids." Moscow, 1960. 16 pp with graphs; (Ministry of Higher Education USSR, Moscow Order of Lenin Chemical Technology Inst im D. I. Mendeleyev); 150 copies; price not given; (KL, 23-60, 125)

S/191/60/000/002/001/012
B027/B058

AUTHORS: Arkhipova, Z. V., Semenova, A. S., Sirota, A. G.,
             Gol'denberg, A. L., Il'chenko, P. A.

TITLE: Copolymerization of Ethylene With Propylene

PERIODICAL: Plasticheskiye massy, 1960, No. 2, pp. 4-8

TEXT: The authors deal with the copolymerization of ethylene with
propylene, since polymerization of ethylene with chromium oxide catalysts
on an aluminum silicate carrier results in a material of too low elasticity.
The change of the polyethylene properties by increasing the ramification
and reducing the degree of crystallinity by means of copolymerization of
ethylene with other monomers is therefore of interest. The methods elabo-
rated for the production of polyethylene (Ref. 1) were applied for the
synthesis of ethylene copolymers with propylene. A carrier with 4% Al_2O_3

and 96% SiO_2 saturated with a 0.3 mole aqueous chromium anhydride solution

was used as catalyst. The activation took place at 550°C, air velocity
200 l per 1 l catalyst during 5 hrs. A 1.5 l autoclave with a stirring

Card 1/ 3

Copolymerization of Ethylene With   S/191/60/000/002/001/012
Propylene   B027/B058

apparatus and steam jacket was used for the copolymerization. The degree
of ramification of the copolymers was determined by infrared absorption
spectra, the degree of crystallinity was calculated according to X-ray
diffraction curves. The copolymerization of ethylene with propylene pro-
ceeds less readily than the polymerization of ethylene; the reaction is
strongly accelerated if the pressure is increased within the range of
from 8 to 30 atm. The temperature is a very important factor in the
preparation of polymers with certain properties. A temperature increase
reduces the viscosity, tensile strength, and breaking elongation. An
increase of the propylene content in the initial mixture of the monomers
leads to increased ramification of the copolymers and a reduction of the
crystallinity degree. It follows from the dependence determined that the
properties of new polymers can be altered toward the required direction
by altering the composition of the initial mixture of the monomers and the
conditions of the copolymerization process. Thanks are expressed to
Professor V. M. Chulanovskiy and the scientific collaborators I. N.
Andreyeva and V. M. Zapletnyak for advice rendered, to B. A. Lipkind for
producing the aluminum silicate samples and to A. M. Val'berg, A. A.
Stepanova, and G. S. Rubinson for experimental work. There are 8 figures,

Card 2/3

Copolymerization of Ethylene With
Propylene

S/191/60/000/002/001/012
B027/B058

2 tables, and 3 references: 2 Soviet and 1 US.

Card 3/3

38063
S/191/62/000/006/003/016
B110/B138

/5. 2 (t /.

AUTHORS: Gol'denberg, A. L., Il'chenko, P. A., Sirota, A. G.,
              Ryabikov, Ye. P., Kulikovskaya, L. F.

TITLE: Investigation of the structure of ethylene-propylene
              copolymers

PERIODICAL: Plasticheskiye massy, no. 6, 1962, 6-11

TEXT: The paper reports research into the relationship between the
branching of propylene-ethylene copolymers (30-40 at) and crystallinity,
which determines physicomechanical properties. The copolymer contained up
to 50% C_3H_6. Its branching was examined using samples 0.020 mm thick and
an ИКС-11 (IKS-11) spectrometer with an NaCl prism. The number of CH_3
groups per 100 carbon atoms was found from the intensity ratio of the
1378 and 1465 cm^{-1} absorption bands. The degree of crystallinity was
determined from X-ray diffraction curves obtained with an УРС-50 (URS-50)
apparatus. It was found that the degree of crystallinity increased almost
linearly with decreasing number of CH_3 groups. The crystallinity and

Card 1/2

Investigation of the structure ...

S/191/62/000/006/003/016
3110/3138

density of copolymers containing 2-3.3 CH_3 groups are substantially higher than for high-density polyethylene (copolymer 80-87%, high-density polyethylene 50-70% crystallinity), as branching of ethyl and butyl is present in the latter. For less than 2 CH_3 groups the X-ray pictures of copolymers and polyethylene differ only in crystallinity. For 4-5 CH_3 groups the crystallinity falls and the diffraction pattern is shifted toward larger interplane distances. Examination under an electron microscope revealed greater formations of spherolites in polyethylene than in the copolymer. Crystallinity and density thus decrease as the number of propylene links in the macromolecular increase. It was established by examining the crystallinity by infrared absorption spectra that the 730 cm^{-1} absorption band increased almost linearly with crystallinity while the 1302 cm^{-1} band decreased non-linearly. There are 8 figures.
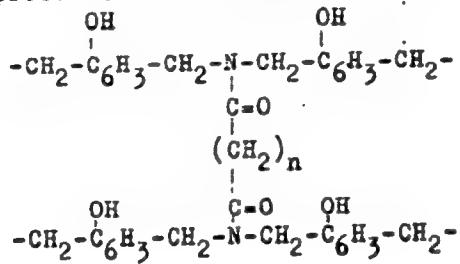
Card 2/2

S/191/62/000/011/017/019
B101/B186

AUTHORS: Shabadash, A. N., Sirota, A. G.

TITLE: Spectroscopic study of the effect of dicarboxylic acids on
the setting of novolac resins

PERIODICAL: Plasticheskiye massy, no. 11, 1962, 65-67

TEXT: A check was made of the assumption that the setting of phenol
formaldehyde novolac resin with hexamethylene tetramine in the presence of
dicarboxylic acids proceeds with formation of cross links of the type

$$-CH_2-C_6H_3-CH_2-N-CH_2-C_6H_3-CH_2-$$

with OH groups on the C_6H_3 rings and

$$C=O$$
$$(CH_2)_n$$
$$C=O$$

$$-CH_2-C_6H_3-CH_2-N-CH_2-C_6H_3-CH_2-$$

Card 1/2

Spectroscopic study of the ...

S/191/62/000/011/017/019
B101/B186

was checked. For this purpose, the spectra of 2,2'-dihydroxy-3,5,3',5'-
tetramethyl dibenzyl amine (I), m.p. 114°C, of a reaction product of I with
10% oxalic acid at 170°C, of novolac set with 10% hexamethylene tetramine
and 10% oxalic acid at 150°C, and of novolac set with 10% hexamethylene
tetramine alone at 150°C were compared with one another. Results: The
reaction product of I with oxalic acid showed bands characteristic of the
$C=0$ group at 1645 and 1663 cm^{-1}, whereas the bands at 1230 and 710 cm^{-1},
characteristic of oxalic acid were missing. Thus, cross linking occurred
between the nitrogen atoms of the amine through a $C=0$ group. The same

$$C=0$$

$C=0$ bands appeared in novolac set with oxalic acid, whereas they were
missing in novolac set without oxalic acid. The presence of these cross
links is assumed to be the cause of the accelerated setting of novolac
resins in the presence of dicarboxylic acids, resulting in improved
physicomechanical properties. There are 4 figures.

Card 2/2

SEMENOVA, A.S.; PARAMONKOV, Ye.Ya.; FEDOTOV, B.G.; GOL'DENBERG,
A.L.; IL'CHENKO, P.A.; CHAPLINA, A.M.; SKURIKHINA, V.S.;
SAZHIN, B.I.; MATVEYEVA, Ye.N.; KOZOLA, A.A.; DYN'KINA,
G.M.; SIROTA, A.G.; RYBIKOV, Ye.P.; GERBILSKIY, I.S.;
SHCHUTSKIY, S.V., red.; SHUR, Ye.I., red.

[Medium pressure polyethylene] Polietilen srednego davleniia.
Moskva, Khimiia, 1965. 89 p.   (MIRA 18:7)

1. Nauchno-issledovatel'skiy institut polimerizatsionnykh
plastmass (for all except Shchutskiy, Shur).

L 8508-66 (A) EWT(m)/EWP(j)/T RPL WW/WE/RM
ACC NR: AP5028491 SOURCE CODE: UR/0286/65/000/020/0066/0066

AUTHORS: Sirota, A. G.; Ryabikov, Ye. P.; Chopko, L. F.; Lavrovskiy, K. P.;
Brodskiy, A. M.; Rumyantsev, A. N.; Il'chenko, P. A.; Gol'denberg, A. L.

ORG: none

TITLE: A method for obtaining ethylene copolymers. Class 39, No. 175658

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 66

TOPIC TAGS: polymer, copolymer, ethylene, olefin, chromium compound, catalyst,
copolymerization, paraffin, cracking, petroleum

ABSTRACT: This Author Certificate presents a method for obtaining ethylene
copolymers by copolymerizing ethylene with an α-olefin-containing compound at
60-130C and at a pressure of 30-40 atm in the presence of acid chromium catalyst.
To simplify the technique of copolymerization, benzine distillate of rapid contact
cracking of petroleum paraffins is used as the α-olefin-containing compounds.

SUB CODE: 07/ SUBM DATE: 07Feb63

Card 1/1   UDC: 678.742.2-139

L   20371-66   EWT(m)/EWP(j)/T/ETC(m)-6   WW/RM

ACC NR: AP6006535   (A)   SOURCE CODE: UR/0191/65/000/011/0005/0008

AUTHORS: Sirota, A. G.; Ryabikov, Ye. P.; Gol'denberg, A. L.; Il'chenko, P. A.;
Chopko, L. F.

ORG: none

TITLE: Modification of the structure and properties of polyolefins. Copolymers
of ethylene with higher α-olefins

SOURCE: Plasticheskiye massy, no. 11, 1965, 5-8

TOPIC TAGS: polymer, crystalline polymer, conjugated polymer, catalytic
polymerization, catalyst, organic synthetic process, copolymer, ethylene, olefin,
polymer structure

ABSTRACT: The synthesis of ethylene-higher α-olefin copolymers in the presence
of an oxychromic catalyst was studied. The catalyst was prepared after Z. V.
Arkhipova, A. S. Semenova, A. G. Sirota, A. L. Gol'denberg, and P. A. Il'chenko
(Plast. massy, No. 2, 4, 1960), and the higher α-olefins were synthesized after
A. L. Gol'denberg and S. O. Lyubetskiy (Vysokomolek. soyed., 5, No. 6, 905, 1963).
The reaction was carried out in an autoclave at a temperature of 80--100C. The
degree of crystallinity, modulus of elasticity, density, viscosity in decaline at

Card 1/3   UDC: 678.74-13.01:539.2

L   20371-66

ACC NR: AP6006535   3

135C, melting point, and the number of CH_3 groups per 1000 atoms of C of the
synthesized polymers were determined. The experimental results are presented in
graphs and tables (see Fig. 1). The degree of crystallinity and the extent of

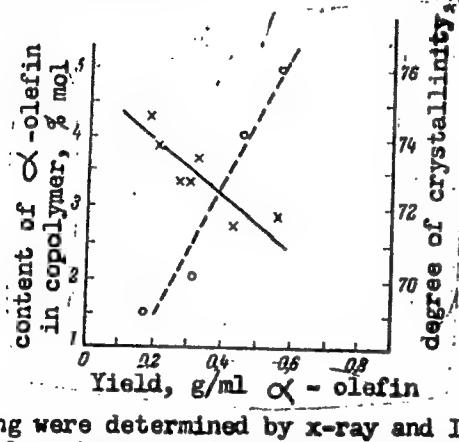Fig. 1. Composition (_____) and
degree of crystallinity (- - - -)
of ethylene- α -heptene copolymer
as a function of the reaction yield.

branching were determined by x-ray and IR spectra respectively. It was found that
the ethylene-higher α-olefins have properties intermediate between those of
medium and high pressure polyethylene. B. I. Vol and N. V. Sarana participated in
Card 2/3

L   20371-66
ACC NR: AP6006535   4

the experimental work. Thanks are given to B. A. Krentsel', K. P. Lavrovskiy,
A. M. Brodskiy, and A. N. Rumyantsev for their valuable advice. Orig. art. has:
2 tables and 5 graphs.

SUB CODE: 07,11/   SUBM DATE: none/   ORIG REF: 009/   OTH REF: 009

Card 3/3   vmb

ACC NR: AP6027284   SOURCE CODE: UR/0191/66/000/008/0058/0060

AUTHOR: Sirota, A. G.; Gol'donberg, A. L.; Il'chenko, P. A.; Ryabikov, Ye. P.; Fedotov, B. G.; Karaseva, M. G.; Zyuzina, L. I.; Kharitonova, O. K.

ORG: none

TITLE: Modification of the structure and properties of polyolefins. Effect of radiation on ethylene-propylene copolymers

SOURCE: Plasticheskiye massy, no. 8, 1966, 58-60

TOPIC TAGS: irradiation effect, electron radiation, copolymer, ethylene, propylene, radiation chemistry

ABSTRACT: The effect of irradiation with fast electrons (2.0-2.2 MeV) on the structure and properties of ethylene-propylene copolymers (EPC) was studied on films of these copolymers (50 μ thick) containing 7 mole % propylene (EPC-7) and stabilized with the heat and light stabilizers P-24 phosphite and 2-hydroxy-4-alkoxybenzophenone. The irradiation effect was determined from the solubility of the films, given by the content of the soluble sol fraction extracted with boiling o-xylene. The cross-linking produced by the electrons decreases the crystallinity of the copolymer: the degree of crystallinity, determined by x-ray diffraction, decreased with increasing irradiation dose, but there was no appreciable change in the fusion temperature. A study of the change in physicomechanical characteristics showed the specific elongation at rupture to decrease (particularly at 50 Mrad) and the ultimate tensile strength to fall off

Card 1/2   UDC: 678.742.2-134.23.019.3:539.124

L 47009-66

ACC NR: AP6027284

4

slightly with increasing dose. The most significant change occurs above the melting range of the film: at 135°C, the initial film has no strength of extension at all, whereas the irradiated film has a strength of extension of about 10 kg/cm^2. The degree of unsaturation of the copolymer increases substantially with increasing dose up to 100 Mrad, and approaches a constant value with further increase in dose. The main type of unsaturation are the trans-vinylene groups (R-HC=CH-R'). The irradiated copolymer samples oxidize rapidly in air, and IR spectra show an increase in the concentration of carbonyl groups. In conclusion, authors thank A. V. Lysov, S. A. Subbotkin, A. S. Andreyev and A. M. Khomyakov for their assistance in the irradiation of the samples. Orig. art. has: 5 figures.

SUB CODE: 07,18/ORIG REF: 003/ OTH REF: 005

Card 2/2 vmb

89643

16.2200

AUTHOR: Sirota, A.I.

TITLE: Centers of Non-Compact Simple Lie Groups

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol.134, No.1, pp.44-47

TEXT: The author calculates the centers of all simply connected non-compact simple Lie groups. He uses the generalization of the method used by Ye.B.Dynkin and A.L.Onishchik (Ref.2: UMN, 10, no.4, 3 (1955)) for the calculation of the centers in the case of compact groups.

The appearing groups are connected.

Let P -- compact simple Lie algebra, H -- its Cartan subalgebra, [P] -- its complex form, Σ -- complete system of the roots of P, e_α -- root vector of [P] which corresponds to the root α. The structural formulas are

$$[e_\alpha, e_\beta] = N_{\alpha,\beta}\, e_{\alpha+\beta} \quad (\alpha+\beta \neq 0); \quad [e_\alpha, e_{-\alpha}] = 2\pi i\alpha;$$

$$[h,\, e_\alpha] = 2\pi i(h,\alpha)e_\alpha; \quad h \in H; \quad \alpha,\beta \in \Sigma,\ \Sigma \subset H.$$

Let $\mathcal{T} = \mathcal{T}_0 \exp(\bar{\bar{h}})$, where $\bar{\bar{h}}$ is the matrix of the linear transformation

Card 1/5

89643

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C111/C222

Centers of Non-Compact Simple Lie Groups

$x \rightarrow [x,h]$, $x \in P$, $h \in H$, and τ_0 -- involutive automorphism of P which transfers into itself a certain system $\prod(P) \subset H$ of simple roots of P, where $\tau_0(e_\alpha) = e_{\tau_0(\alpha)}$, $\alpha \in \prod(P)$ if τ_0 is extended to the automorphism of the whole algebra $[P]$.

Let P_+ be the subalgebra of P belonging to the characteristic root 1 of τ, and let $H_+ = P_+ \cap H$. Let $\mathcal{G}$ be a certain real group with the Lie algebra G; $\mathcal{H}_+$ -- its commutative subgroup generated by H_+. If $\mathcal{G}$ is simply connected then it is denoted with $\widetilde{\mathcal{G}}$.

Lemma 1: The center $\mathcal{C}(\mathcal{G})$ of the group $\mathcal{G}$ is contained in the commutative subgroup $\mathcal{H}_+$.

Let R -- semisimple compact algebra, $\Gamma_0(R)$ -- the integral lattice in the Cartan subalgebra of R the base of which is formed by the vectors $\alpha' = \frac{2\alpha}{(\alpha,\alpha)}$, $\alpha \in \prod(R)$. Let $\Gamma_1(R)$ -- the integral lattice the base of which is biorthogonal to the system $\prod(R)$. Let P_0 be the subalgebra

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Centers of Non-Compact Simple Lie Groups

of P belonging to the characteristic root 1 of τ_0.

Lemma 2: The inverse image of the center of the group $\mathcal{G}$ in H_+ for the canonical mapping c: $G \rightarrow \mathcal{G}$ is the lattice $\Gamma_1(P) \cap H_+$, where this lattice is identical with the lattice $\Gamma_1(P_0)$.

Let $P_+ = P_1 + V$ be the decomposition of the compact algebra P_+ into the semisimple compact P_1 and the commutative V.

Theorem: The center of the simply connected group $\widetilde{\mathcal{G}}$ is isomorphic to the factor group $\Gamma_1(P_0)/\Gamma_0(P_1)$, where the isomorphism is generated by the canonical mapping c:$G \rightarrow \widetilde{\mathcal{G}}$.

Then the author gives the centers $\mathcal{C}(\widetilde{\mathcal{G}})$ of the simply connected non-compact simple real Lie groups. Let $Z_m(z)$ be the additive cyclic group of m-th order with the generator z, $Z(z)$ be the infinite cyclic group. The numeration of the simple roots is the same as in (Ref.2). The real forms of singular algebras are given by the signatures δ of their Cartan metric. The enumeration is arranged according to the real

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C111/C222

Centers of Non-Compact Simple Lie Groups

forms A_n $(n > 1)$, B_n, C_n, D_n, G_2, F_4, E_6, E_7, E_8, e.g.:

Real forms C_n.

Let $z = \frac{1}{2} \sum_{o}^{[(n-1)/2]} \alpha'_{2k+1}$, $z_1 = \alpha'_n$.

1. $G = C_n^{21}$ -- the algebra of the matrices of the order 2n which let invariant the skew-symmetric bilinear form $\sum_n (x_{2k-1}y_{2k} - x_{2k}y_{2k-1})$ and the Hermitean form $-\sum_1^{21} x_k \bar{y}_k + \sum_{21+1}^{2n} x_k \bar{y}_k$. The center has the form $Z_2(z)$.

2. $G = IC_n$ -- the algebra of the real matrices of the order 2n which let invariant the skew-symmetric bilinear form $\sum_1^n (x_{2k-1}y_{2k} - x_{2k}y_{2k-1})$

The center is $Z(z)$ for an odd n, and $Z_2(z) + Z(z_1)$ for an even n.

Real forms G_2.

1. $\delta = 2$. The center is $Z_2(\alpha'_2)$.

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S/020/60/134/001/032038XX
C111/C222

Centers of Non-Compact Simple Lie Groups

Real forms F_4

1. $\delta = -52$. The center is trivial.
2. $\delta = 4$.   The center is $Z_2(\alpha_1')$.

Real forms E_8

1. $\delta = -24$. The center is $Z_2(\alpha_1)$.
2. $\delta = 8$.   The center is $Z_2(\alpha_2)$.

The author mentions F.R.Gantmakher and A.S.Solodovnikov. He thanks P.K. Rashevskiy for the interest in the paper. There are 5 references: 3 Soviet and 2 French.

PRESENTED: April 16, 1960, by P.S.Aleksandrov, Academician

SUBMITTED: April 15, 1960

Card 5/5

85939

S/020/60/134/003/029/033XX
C 111/ C 333

/l.2000

AUTHOR: Sirota, A. J.

TITLE: Kernels of Linear Representations of Noncompact Simple
Lie Groups

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 3,
pp. 540-543

TEXT: According to A. J. Mal'tsev (Ref.1), there exists among the
locally isomophic semisimple groups admitting rigorous linear re-
presentations, the so-called universal linear group with the proper-
ty that the other groups are factor groups of this group. This group
is obtained from the simply connected covering by factorization
with respect to a certain central normal subgroup which is denoted
as linearizing normal subgroup. Let P be a simple compact Lie
algebra, $[P]$ its complex form, τ its involutive automorphism,
$G = P_{+1} + i P_{-1}$, where $P_{+} \subset P$ is the subalgebra belonging to the
characteristic root $+ 1$ of τ and P_{-1} belongs to the root -1. Let
the Cartan subalgebra H of P be chosen so that $\tau = \tau_0 \exp(\bar{h})$,
where $\bar{h}$ is the matrix of the linear transformation $x \to [x,h]$,
$x \in P$, $h \in H$ and τ_0 an involutive isomorphism of P which leaves
invariant a certain system $\prod (P)$ of simple roots of P (see (Ref.3)).

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S/020/60/134/003/029/033XX
C 111/ C 333

Kernels of Linear Representations of Noncompact Simple Lie Groups

Let $H_+ = H \cap P_+$ and $P_+ = P_1 + V_+$ where P_1 is compact semisimple and $V^+ \subset H_+$ commutative. Let $\Gamma_0(R)$ be an integral grid in the Cartan subalgebra with the basis

$$\alpha' = \frac{2\alpha}{(\alpha,\alpha)}, \quad \alpha \in \Pi(R)$$

of a semisimple compact algebra R.

Let $\widetilde{G}$ be a simply connected real group with the Lie algebra G, $\widehat{G}$ the universal linear group locally isomorphic to $\widetilde{G}$.

Theorem: The linearizing normal subgroup N of a simply connected simple real group $\widetilde{G}$ is isomorphic to the factor group

$$\Gamma_0(P) \cap H_+ \; / \Gamma_0(P_1).$$

The isomorphism is generated by the canonical mappping of the algebra G into the group $\widetilde{G}$.

From this it follows in particular that the center of the universal
Card 2/3

85939

S/020/60/134/003/029/033XX
C 111/ C 333

Kernels of Linear Representations of Noncompact Simple Lie Groups

linear group for real forms of first category coincides with the center of the simply connected compact group of the same complex structure, the element representations of which are calculated in the Cartan subalgebra $\mathfrak{A}_n$ (Ref. 2). These results are used in order to give the linearizing normal subgroups N (as subgroups of the center $C(\tilde{G})$ of the group $\tilde{G}$), the centers of the universal linear groups $C(\hat{G})$ and the kernels of the linear representations for real simple noncompact groups.

There are 4 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy pedagogicheskiy institut imeni V. J. Lenina (Moscow State Pedagogical Institute imeni V. J. Lenin)

PRESENTED: May 9, 1960, by J. G. Petrovskiy, Academician

SUBMITTED: May 7, 1960

Card 3/3

SIROTA, A.I.

Torsion of spaces with infinitesimal connectivity. Trudy Mat.
inst. AN Gruz. SSR 27:3-9 '60.   (MIRA 15:3)
(Topology)

SIROTA, A. I., Cand. Phys-Math. Sci.   (diss) "Material Simple Li Groups as a Whole." Moscow, 1961   8 pp. (Moscow State Univ. Mech.-Math. Fac.) (KL Supp 12-61, 253).

SIROTA, A.I.

Simple subgroups of simply-connected real simple Lie groups. Dokl.
AN SSSR 137 no.5:1063-1066 Ap '61.   (MIRA 14:4)

1. Predstavleno akademikom I.G.Petrovskim.
                    (Groups, Theory of)

SIROTA, A.I.; SOLODOVNIKOV, A.S.

Noncompact semisimple Lie groups. Usp. mat. nauk 18 no.3:87-144
My-Je '63.   (MIRA 16:10)

LIPCHA, A.M.

Geometry of three-dimensional space with a degenerate Euclidean metric. Ush. zap. MGPI no.208:298-313 '63.

Invariant affine connectivities of ruled spaces.   (MIRA 10-398)
(Spaces)

SIROTA, A.I.

Classification of real simple Lie groups (in the large).
Uch. zap. MGPI no. 243:345-365 '65   (MIRA 19:1)

SIROTA, A. M.

SIROTA, A. M. -- "Investigation of the Heat Content of Water Vapor in
the Subcritical Region." Min Electric Power Stations USSR. All-
Union Order of Labor Red Banner Heat Engineering Sci Res Inst
imeni F. E. Dzerzhinskiy. Moscow, 1955. (Dissertation for the
Degree of Candidate in Technical Sciences)

SO: Knizhnaya Letopis', No 1, 1956

AID P - 4966

Subject   : USSR/Engineering

Card 1/2   Pub. 110-a - 15/21

Authors   : Rivkin, S. L., A. M. Sirota, Kandidats Tech. Sci.

Title   : Tables of the thermodynamic properties of water and steam
                 for pressures up to 400 atmospheres and temperatures up
                 to 750°C. (Reference Material)

Periodical : Teploenergetika, 3- 8,   52-54, Ag 1956

Abstract   : Tables compiled by the Physical and Technical Department
                of the All-Union Heat Engineering Institute (VTI) are
                presented. They are based on the VTI tables of 1952,
                revised and expanded for the higher temperatures and
                pressures. 2 tables. 5 references.

Institution : All-Union Heat Engineering Institute

Submitted   : No date

Category : USSR/Atomic and Molecular Physics - Statistical Physics   D-3
           Thermodynamics

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3477

Author   : Sirota, A.M., Timrot, D.L.
Inst   : All-Union Heat Engineering Institute
Title   : Experimental Investigation of the Specific Heat of Water Vapor in the
           Precritical Region

Orig Pub : Teploenergetika, 1956, No 7, 16-23

Abstract : Description of a new experimental setup for the determination of C_p
           of water vapor at precritical pressures. Measurement results are
           given for pressures from 20 to 120 kg/cm^2 and for temperatures from
           the saturation curve to $380°$. An analysis of the measurement accuracy
           is given.

Card   : 1/1

TIMROT, D.L., doktor tekhn.nauk; RIVKIN, S.L., kand.tekhn.nauk; SIROTA, A.M.,
kand.tekhn.nauk; VARGAFTIK, N.B., doktor tekhn.nauk; NIKOLAYEV, V.V.,
red. MEDVEDEV, L.Ya., tekhn.red.

[Tables of thermodynamic properties of water and steam] Tablitsy
termodinamicheskikh svoistv vody i vodianogo para. Izd. 2-oe, dop.
Moskva, Gos. energ. izd-vo, 1958. 106 p.   (MIRA 11:4)

1. Moscow. Vsesoyuznyy teplotekhnicheskiy institut.
        (Steam--Tables, calculations, etc.)

SOV/9:-58-7-3/22

AUTHOR: Sirota, A.M., Cand.Tech.Sci.

TITLE: The specific heat and enthalpy of steam at sub-critical pressures,
            (Teployemkost'i ental'piya vodyanogo para pri dokriticheskikh
            davleniyakh,

PERIODICAL: Teploenergetika, 1958.   No.7, pp. 10-13 (USSR)

ABSTRACT: An article in Teploenergetika No.7., 1956, described experimental
            equipment for investigating the specific heat at constant pressure
            of steam by the method of flow in a closed circulating system;
            results were given from the saturation curve up to 380°C and
            pressures of 20 - 120 kg/cm^2. The present article describes a new
            series of tests made on the same equipment at temperatures up to
            550°C and pressures up to 150 kg/cm^2. Details are given of
            modifications made to the measuring equipment to deal with the
            higher temperatures. It was checked that the loss of heat down the
            current leads did not exceed 0.05% of the heater power. The 29
            experimental values obtained in the present work are given in Tabl.1.
            One point was rejected and one previously published point was
            found to be in error. Extrapolation to zero pressure shows good
            agreement with available data. Special tests were made at the
            pressure of 100 kg/cm^2 to see whether alteration of the flow rate
            caused systematic errors, but it did not. The experimental data for
            cp obtained by the All-Union Thermotechnical Institute and other

Card   1/3

The specific heat and enthalpy of steam at sub-critical pressures.

authors are compared in a graph. The results before and after modification of the apparatus agree to within 0.3%; agreement with the results of Koch and others is also good. Specific heat data for convenient rounded temperature values obtained by graphical interpolation are given in Table.2, and also specific heats at the saturation temperatures corresponding to the given pressures obtained by extrapolation on the isobar. Results of other authors are also given. If the erroneous data of Knoblauch and Koch are used there is considerable difference from our results for c_p (13% at 100 kg/cm^2). For temperatures above 400°C, calculated values of c_p are 1.5% higher than the experimental values, and since these are the first experimental results in this range the agreement is satisfactory. Table 3 gives enthalpy values obtained by graphical integration of specific heat isobars, constructed from experimental data of the All-Union Thermotechnical Institute and also enthalpies obtained from the steam tables and experimental data obtained by throttling; use is made of published data. The existence of a systematic difference between enthalpies determined by throttling and from experimental data for c_p is confirmed at sub-critical pressures. On average the calculated values are 1 kcal/kg above the experimental. Enthalpy from the steam tables is in much better agreement with the new data. Near the saturation temperature, the

Card 2/3

The specific heat and enthalpy of steam at sub-critical pressures. SOV/96-58-7-3/22

difference between our results and those of other authors does not exceed 1.5%, which is probably a reflection of the experimental errors in this region: agreement is closer at higher temperatures. Over the entire range investigated the enthalpy values at sub-critical pressure are no less accurate than the results of throttling tests, and are more accurate near the saturation curve. The skeleton enthalpy table adopted by the Third International Conference requires slight correction on the 300°C isobar. There are 3 tables, 1 figure, 7 literature references (2 Soviet, 3 German and 2 English)

ASSOCIATION: Vsesoyuznyy Teplotekhnicheskiy Institut (All-Union Thermotechnical Institute)

Card 3/3   1. Steam – Specific heat   2. Steam – Enthalpy   3. Steam – Pressure factors

Sirot), D.M.

96-1-29/31

AUTHORS: Rivkin, S.L. and Sirota, A.M., Candidates of Technical
Sciences.

TITLE: On the New Tables of Thermodynamic Properties of Steam at
High Temperatures and Pressures (O novykh tablitsakh opor-
nykh znacheniy termodinamicheskikh svoystv vodyanogo para
vysokikh parametrov)

ABSTRACT: An article giving new steam tables was published in
Teploenergetika, 1956, No.1. It stated that in most cases,
values of enthalpy calculated from pressure, volume and
temperature data were higher than those calculated from the
specific heat at constant pressure. The authors thought that
apart from experimental error, this might result from errors in
the initial data about the enthalpy of steam in the ideal gas
conditions. However, this explanation is not convincing and
the graphs given in Fig.1 show that the divergence between
the values of enthalpy calculated in the two ways increases
with the temperature and pressure and is 16 kcal/kg at 600 $^\circ$C
and 500 kg/cm^2. A possible cause of the large difference may
be error in graphical determination of the enthalpy from
pressure, volume and temperature data. This is particularly
likely in the article concerned, which used graphical

Card1/2

96-1-29/31

On the New Tables of Thermodynamic Properties of Steam at High
Temperatures and Pressures.

differentiation of the isobars of specific volume. Fig. 2
gives comparative values of specific volume according to
the table of the All-Union Thermo-technical Institute (VTI)
and the reference points of the Moscow Power Institute (MEI).
Some large discrepancies occur, mainly because of the scatter
of the points of the Moscow Power Institute. It is concluded
that the experimental data on the specific heat of constant
pressure obtained in the Moscow Power Institute are
systematically low. This reduces the value of the steam tables.
There are 3 figures and 6 references, 5 of which are Slavic.

AVAILABLE: Library of Congress

Card 1/2

SOV/115-59-8-13/33

9(2)
AUTHOR: Sirota, A. M., Mal'tsev, B. K.

TITLE: The Gold - Platinum Thermocouple

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 8, pp 27 - 28
                (USSR)

ABSTRACT: The authors describe a gold - platinum thermocouple.
                Thermocouples are frequently used in research for
                precise measurements of temperatures below 630°C,
                for example, when measuring small temperature dif-
                ferences, in case a reduction of the size of the
                sensitive element is required and the possibility of
                using a platinum resistance thermometer is excluded.
                The platinrhodium-platinum thermocouples do not pos-
                sess all the properties required for this purpose,
                especially their thermoelectric uniformity is low.
                Instability of platinrhodium-platinum thermocouples at
                temperatures of $400-600^\circ$C were described in /Ref 1/.
                According to A. A. Rudnitskiy /Ref 2 7, the thermo-
                electric uniformity of pure metals is higher than
                that of alloys. The authors investigated a gold-
Card 1/3   platinum thermocouple. The gold was refined and

· The Gold - Platinum Thermocouple

drawn at the laboratory of A. A. Rudnitskiy at the Institut metallurgii AN SSSR (Institute of Metallurgy of the AS USSR). Chemically pure platinum wire of type PT1 (GOST 8588-57) was used. The gold and the platinum wire had diameters of 0.2 mm. The nonuniformity of platinum did not exceed 0.4 microvolts, that of gold was below 0.3 microvolts, while that of platinrhodium was 1.5 microvolts. The total nonuniformity for the platinrhodium-platinum thermocouple was $0.2^{\circ}C$, but only $0.04^{\circ}C$ for the gold-platinum thermocouple. The authors describe the manufacturing of the gold-platinum thermocouple in detail. In their final statement, the authors say that, since the thermoelectric uniformity of gold is higher than that of platinrhodium, a gold-platinum thermocouple will produce more precise temperature measurements than a platinrhodium-platinum thermocouple. The higher thermal e.m.f. and the lower electrical resistance are the most important advantages of gold-platinum thermocouples. Their disadvantage is the higher heat conductivity, sus-

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SOV/115-59-8-13/33

The Gold - Platinum Thermocouple

ceptibility to plastic deformations and the lower melting point of gold compared to platinrhodium. This deficiency may be eliminated by using a rhodium-platinum thermocouple which will be investigated in the future. The authors present a table which contains thermal e.m.f. of gold-platinum thermocouples for different temperatures ranging from 200 to 550°C, whereby the thermal e.m.f. changes from 1839.2 to 7180.1 microvolts. There are 1 graph and 1 table.

Card 3/3

SOV/96-59-9-2/22

AUTHORS: Sirota, A.M. (Candidate of Technical Sciences), and
             Mal'tsev, B.K. (Engineer)

TITLE: An Experimental Investigation of the Specific Heat of
             Water at Temperatures of 10 to 500 °C and Pressures up
             to 500 kg/cm².

PERIODICAL: Teploenergetika, 1959, Nr 9, pp 7-15 (USSR)

ABSTRACT: Previously published work on the specific heat of water at
             pressures above 300 kg/cm² is briefly reviewed.   The
             first object of the present work was to verify experi-
             mental values at pressures of 300-500 kg/cm² and
             temperatures above 300 °C. However, it was soon found
             necessary to make new measurements at lower temperatures
             over the entire pressure range up to 500 kg/cm².   The
             new experimental rig for studying water and super-critical
             pressures is schematically illustrated in Fig 1.   The
             experimental procedure adopted is an improvement on one
             previously described by the same author.   The specific
             heat is determined by calorimetric measurements on flow
             in a closed circuit.   The equipment is described at some
             length.   The new apparatus differed from the old in the
             ways that may be seen from Fig 1; in addition it uses a
Card 1/4   glandless pump.   The circulation pump driven by an

SOV/96-59-9-2/22

An Experimental Investigation of the Specific Heat of Water at
Temperatures of 10 to 500 oC and Pressures up to 500 kg/cm².

electric motor operating in water under pressure offers
numerous advantages over other types of drive.
Temperature measurements in the calorimeter were made
more accurate by using a resistance thermometer and
thermocouples of gold-platinum, which are better than
those previously used.   Thermocouple developments are
described.   The experimental procedure is explained.
Measurements were usually made 3-4 hours after starting
up of the equipment; 35 minutes were required to obtain
a single experimental point, and transition to a new
point on the isobar took about an hour. At temperatures
up to 300 oC the tests were made on isotherms so that
change-over to new conditions was quicker.   The steps
taken to ensure accuracy of the experiments are specified.
A graph of the correction applied to the thermo e.m.f. of
the gold conducting wires of the differential thermocouple
is given in Fig 2. Methods of evaluating the accuracy of
the measurements are described.   The 230 experimental
Card 2/4 points obtained in the tests are given in Tables 1 and 2.
The new data of the All-Union Thermo-Technical Institute

SOV/96-59-9-2/22

An Experimental Investigation of the Specific Heat of Water at
Temperatures of 10 to 500 °C and Pressures up to 500 kg/cm^2.

are compared with data of other authors in the neighbour-
hood of the maximum specific heat at constant pressure in
Figs 3, 4 and 5. Previous results obtained by the
channel method are within 1% of the new data, whilst
those of the Moscow Power Institute using the Scheindlin
method are systematically 3-4% higher. The very small
scatter of the results obtained in the present work will
be noted. Other differences between the results of the
two Institutes are pointed out and are attributed to the
dependence of results obtained by the Scheindlin method
on the depth of immersion of the resistance thermometer
in the calorimeter. The thermometer position was deter-
mined in the calibrating tests with water at room
temperatures, but probably the heat transfer conditions
in the calorimeter changed on transition from the
calibrating to the main test conditions. Table 3 gives
values of the specific heat for round values of
temperature and pressure obtained by graphical
Card 3/4 interpolation of the experimental data given in Table 2.
The values of enthalpy calculated from these data and

SOV/96-59-9-2/22

An Experimental Investigation of the Specific Heat of Water at
Temperatures of 10 to 500 $^{\circ}$C and Pressures up to 500 kg/cm^2.

given in Table 4 agree closely with modern steam and
water tables and with the experimental enthalpy data
of Havliček and Miškovský .

Card 4/4

There are 6 figures, 4 tables and 17 references, of
which 13 are Soviet, 3 German and 1 English.

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy institut
(All-Union Thermo-Technical Institute)

AUTHORS: Sirota, A.M. (Cand.Tech.Sci.) and   SOV/96-59-10-12/22
            Belyakova, P.Ye. (Engineer)

TITLE: The Calorific Properties of Water at Pressures up to
            500 kg/cm2 and Temperatures up to 300 °C.

PERIODICAL: Teploenergetika, 1959, Nr 10, pp 67-70 (USSR)

ABSTRACT: In this article new experimental values for the specific
            heat of water at constant pressure are compared with
            published results and with results calculated from p-v-T
            data. The enthalpy of water is calculated for pressures
            up to 500 kg/cm2 and temperatures up to 300 °C. Previous
            work in this field is first briefly reviewed. New
            determinations of the specific heat of water at constant
            pressure were made in 1959 at the All-Union Thermo-
            Technical Institute. Specific heat values calculated
            from p-v-T data of various authors and from Koch's
            empirical formula are given in Table 1. At room tempera-
            ture there is good agreement between the data of various
            authors and Koch's experimental data. Previous experi-
            mental data of the present authors are rounded off and
Card 1/3   interpolated for convenient values of pressure and
            temperature in Table 2. The results are sufficiently

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The Calorific Properties of Water at Pressures up to 500 kg/cm^2 and Temperatures up to 300 oC.

accurate, as the scatter of the experimental points did not exceed 0.1%. Fig 1 compared the rounded data of the All-Union Thermo-Technical Institute with calculated data. Agreement is good at low pressures, but at higher pressures there are appreciable differences between data of the All-Union Thermo-Technical Institute and values of the specific heat at constant pressure calculated by Koch's empirical formula. The differences are not great within the range that Koch studied experimentally, but are greater where he extrapolated, reaching 1.5% at a pressure of 500 kg/cm^2. Other discussions of Koch's results and conclusions are given, and isotherms for the specific heat of water are compared graphically in Fig 2. The work of certain American authors is used to verify the values for the specific heat of water at constant pressure obtained by extrapolation of experimental data on isotherms to the saturation pressure: values for the specific heat of water on the saturation curve are given in Table 3. The calculated values agree with the experimental data of the All-Union Thermo-Technical Institute to within 0.15%.

Card 2/3

SOV/96-59-10-12/22

The Calorific Properties of Water at Pressures up to 500 kg/cm^2
and Temperatures up to 300 oC

Table 4 gives calculated enthalpy values for water. These
new enthalpy values are in rather better agreement with
published American tables than are other published works.
Thus, as a result of the new investigations of the
All-Union Thermo-Technical Institute, there is better
thermo-dynamic agreement between the thermal and
calorific values.

Card
3/3

There are 2 figures, 4 tables and 18 references, of which
7 are Soviet, 4 are German and 7 are English.

ASSOCIATION: All-Union Thermo-Technical Institute (Vsesoyuznyy
teplotekhnicheskiy institut)

SIROTA, A.M., kand.tekhn.nauk; MAL'TSEV, B.K., kand.tekhn.nauk;
BELYAKOVA, P.Ye., inzh.

Maximum heat capacity c_p of water. Teploenergetika 7 no.7:
16-23 Jl '60.   (MIRA 13:7)

1. Vsesoyuznyy teplotekhnicheskiy institut.
          (Heat capacity)
       (Water--Thermal properties)

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S/096/60/000/010/007/022
E194/E184

11.3600

AUTHORS: Sirota, A.M. (Candidate of Technical Sciences) and
            Mal'tsev, B.K. (Candidate of Technical Sciences)

TITLE: Experimental Data on the Specific Heat of Steam at
            Pressures of 300-500 atm and Temperatures of 500-600 °C

PERIODICAL: Teploenergetika, 1960, No 10, pp 67-68

TEXT: A previous article by the same authors in Teploenergetika
No 9, 1959, gave experimental data on the specific heat of water and
steam at pressures up to 500 atm and temperatures up to 500 °C.
Table 1 gives new experimental data obtained on the same equipment
over the temperature range 500-600 °C. The experimental conditions
are briefly described. The new data are in agreement with previously
published results measured at lower temperatures to within 0.25%.
The scatter of experimental points along the isobars does not exceed
0.2-0.3%. Analysis of the accuracy of the new experimental data
indicates that the sum of possible systematic errors does not exceed
0.6%. The new measurements of the All-Union Thermo-Technical
Institute at temperatures of 550-600 °C agree with those of the
Moscow Power Institute to within 2.5%.

Card 1/2

28 (5)   S/032/60/026/01/047/052
AUTHORS: Sirota, A. M., Mal'tsev, B. K.   B010/B009

TITLE: On Testing Methods for Thermoelectrodes and Thermocouples
             (With Reference to the Article by A. N. Gordov and
             N. N. Ergardt Published in the Periodical "Zavodskaya laborato-
             riya", 1958, Vol 24, Nr 12)
                                                    I

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol 26, Nr 1, pp 120 - 121 (USSR)

ABSTRACT: In the paper mentioned in the title the effect of the hetero-
             geneity of the electrodes of thermocouples upon the accuracy of
             temperature measurements was investigated. The present paper
             reports the results of a quantitative determination of the in-
             equality in chromel-alumel wire, which permits an evaluation of
             the errors in temperature measurements with chromel-alumel
             thermocouples. A heater with an asymmetrical temperature field
             was shifted alongside the wire (Fig 1). The wire endings were
             connected up with a potentiometer. The investigations took place
             at 530° at most. After the measurement the wire was glowed out
             for half an hour by heating it electrically to dark-red heat.
             The measurements after glowing (Fig 2) showed that the homo-
Card 1/2   geneity of the wire is improved greatly by glowing. The total

On Testing Methods for Thermoelectrodes and   S/032/60/026/01/047/052
Thermocouples (With Reference to the Article   B010/B009
by A. N. Gordov and N. N. Ergardt Published in the Periodical
"Zavodskaya laboratoriya", 1958, Vol 24, Nr 12)

            error of temperature measurements due to the heterogeneity in ✓
            chromel-alumel thermocouples is 2.5^0. A chromel wire (0.3 mm
            diameter) fixed in an electric furnace at 600^0 for 45 hours
            showed that after such treatment a measuring error of 5^0 would
            have to be expected in the case of chromel-alumel thermocouples.
            High-precision measurements, therefore, must definitely be made
            with Pt/PtRh thermocouples. There are 2 figures.

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy institut (All-Union Institute
               of Heat Technology)

Card 2/2

SIROTA, A.M., kand.tekhn.nauk; MAL'TSEV, B.K., kand.tekhn.nauk

Experimental study of the heat conductance of water in the
critical zone. Teplonergetika 9 no.1:52-57 Ja '62.
(MIRA 14:12)

1. Vsesoyuznyy teplotekhnicheskiy institut.
(Water—Thermal properties)
(Steam)

SIROTA, A.M., kand.tekhn.nauk

International Coordinating Committee on the properties of Water
Vapor. Vest. AN SSSR 32 no.12:85-86 D '62.   (MIRA 15:12)
(Water vapor—Congresses)

SIROTA, A.M., kand. tekhn. nauk; MAL'TSEV, B.K., kand. tekhn. nauk; GRISHKOV, A.Ya., inzh.

Experimental study of the heat capacity of water at high temperatures. Teploenergetika 10 no.9:57-60 S '63. (MIRA 16:10)

1. Vsesoyuznyy teplotekhnicheskiy institut.
        (Water--Thermal properties)

SIROTA, A.M.

Heat capacity of water and water vapor at constant pressure along the saturation curve. Inzh.fiz. zhur. no.12:52-55 D '63.
(MIRA 17:2)

1. Vsesoyuznyy teplotekhnicheskiy institut imeni F.E. Dzerzhinskogo, Moskva.

SYCHEV, V.V. kand. tekhn. nauk; SIROTA, A.M., kand. tekhn. nauk;
GORBUNOVA, N.I., kand. tekhn. nauk

Compilation of international reference tables on the thermodynamic
properties of gases of technical importance. Vest. AN SSSR
35 no.9:90 '65.   (MIRA 18:9)

OZHEREL'YEV, A.N.; SIROTA, A.Ye.; BALAKHNICHEVA, T., red.; KURMAYEVA, T.,
     tekhn.red.

[Achievements of Moldavian leather-industry workers] Tvorcheskii
trud kozhevnikov Moldavii; literaturnaia zapis' M.V.Kitsisa.
Kishinev, Gos.izd-vo "Kartia moldoveniaske," 1960.   48 p.
                                                    (MIRA 14:6)

     (Moldavia—Leather industry)

SIROTA, B.A.

2

1.61. MECHANIZATION OF THE TURNING OF EXCAVATOR COAL. Patyachev, E.B., Vladyka, F.L. and Sirota, B.A. (Trud. Ukr. nauch-issled. Inst. ...

SIROTA, B.A., starshiy nauchnyy sotrudnik.

Research on milled peat at the Ukrainian Scientific Research Institute
for Local and Fuel Industry. Torf.prom. 35 no.2:28-29 '58.
(MIRA 11:5)

1. Ukrainskiy Nauchno-issledovatel'skiy institut mestnoy i toplivnoy
promyshlennosti.
(Peat)

BATYACHEV, Ye.B.; SIROTA, B.A.

Electric thermometers for measuring heat in milled peat. Torf.
prom. 36 no.2:18-19 '59.   (MIRA 12:4)

1. Nauchno-issledovatel'skiy institut mestnoy toplivnoy pro-
myshlennosti Gosplana USSR.
              (Thermometers) (Peat)

SIROTA, B.A., inzh.; DUBROVSKIY, Ye.Ya., inzh.

Experience in the winning of peat with reduced moisture.
Torf. prom. 39 no.5:14-17 '62. (MIRA 16:8)

1. Nauchno-issledovatel'skiy institut mestnoy i toplivnoy
promyshlennosti Gosplana UkrSSR.